REMARKS

Introduction. The amendment to claim 1 is supported at page 15, line 1, in the specification, stating that, within the invention, "image forming apparatuses [optionally] decrease the image forming transport speed instead of increasing the fusing temperature when forming images on thick recording media. The image forming transport speed is the transport speed of the recording medium in the image forming unit and fuser." On the same page, the middle paragraph begins, "The reversing speed control module 121 determines the reversing speed according to ... the image forming transport speed. ... If the fusing temperature is less than the threshold temperature T1 and the image transport speed in the image forming unit is the normal transport speed V1, the reversing speed is set to another predetermined speed V2. If the fusing temperature is less than the threshold temperature T1 and the image transport speed in the image forming unit is less than the normal transport speed V1, the reversing speed is set to the predetermined speed V3. As in the first and second embodiments, speed V2 is faster than speed V1, and speed V3 is slower than speed V2." Fig. 10 shows that in this embodiment the image forming speed (<V1) is a factor in choosing the return (reversing) speed (either V2 or V3).

The claim is exemplified by the control unit 120 that recognizes the type of the recording medium fed from the cassette 102 before the recording medium reaches the image forming unit 107. According to the type of medium, the control unit 120 determines the image forming transport speed V1 at the transport unit, and determines the transport speed (V2 or V3) at the return unit differing from the image forming transport speed (V1).

The Rejection. Claims 1, 8-17, 19, and 20 are rejected under §103 over Hino '906 in view of Russel '419. This rejection is respectfully traversed.

Both references describe a paper path comprises of two parts: a printing path and a return path. Both are concerned with timing the entry of sheets into the printing path.

Russel. Russel (Fig. 1) shows a printing path from the transfer station 62 to the fuser 66 (along belt 64) and a return path (dot-dash line) arching over the lower path and belt 64. The path "69" is a loop, which includes the portion from the transfer station 62 to the fuser 66 (col. 4, lines 56-59), i.e. the printing path, and also the return path.

The loop 69 is generally of fixed length (col. 5, line 12). Russel varies the "effective" length of the loop 69 (Russel col. 5, line 41) by delaying the paper sheet in its trip around the loop 69. Russel notes two ways to do this: one is by "varying the length of time that a receiving sheet [paper] is held in the inverter 68" (the inverter 68 is shown by dot-dash lines in Fig. 1 and in detail in Fig. 2); the other is by varying[1] the paper's speed along the return path (the portion of the loop 69 "remote from the fuser and transfer stations," col. 5, lines 53). Russel prefers the former.

The Examiner is invited to note that Russel teaches *against* varying the speed along the return path. After describing how the sheets are held in the inverter with varying delay times, Russel writes (col. 8, line 46), "A similar result can be accomplished by varying the speed of movement ... in the unconstrained portion of the recirculating path [return path] and using a constant delay in the inverter. This approach is inferior to that just described with the variable delay in the inverter because the recirculating path transport becomes much more complicated and more difficult to control. The same result could also be obtained by varying the actual physical length of the path. Again, this would require movement of guides or rollers and, again, would increase the expense ... while reducing its reliability."

Hino. Hino discloses that the overall paper transport speed is adjustable depending on the type of paper. Hino teaches nothing about the transport speed on the return path being different from the rest of the loop, as the Examiner admits (page 3, line 2), and Hino does not disclose where the medium-type sensor is located, or discuss it in any way.

Hino is concerned almost entirely with the position of the belt seam 5, and with positioning this seam so that it falls outside of the paper (col. 1, lines 23-27), the reason being that the seam harms the image on thin paper (col. 4, lines 61-67). Hino states that the prior art avoided putting paper on the seam when the paper was thick as well as thin, even though thick

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[1] The Examiner has cited col. 8, lines 5-10, reciting that "[the paper] can, at any point in the recirulation path, be sped up." The Applicant sees that the change from the fuser speed to the recirculation speed can take place at any location along the loop 69 which is downstream from the inverter 68. Hino does not say that the higher speed along the upper portion of the loop 69 (given as 750 mm/s) varies, but rather, it says that it stays constant until the paper reaches the transfer station 62 and slows to fuser speed (524 mm/s).

paper is not affected by the seam. By keeping thick paper off of the seam, productivity was decreased (col. 1, lines 36-44). Therefore, when the paper is thin, Hino avoids putting the paper over the belt seam with a complex set of rules, summarized in equation #3 (col. 8) relating different time intervals. Hino teaches that if the transport speed is changed to adapt to thick paper, then the time intervals should also be changed (col. 8, line 66 to col. 9, line 3); however, Hino *also* teaches that for thick paper the seam is to be ignored (col. 9, lines 15-24).

Applicant's Claim 1. Claim 1 recites that (1) the return-path transport speed is set according to the type of medium, (2) the image forming transport speed is set according to the type of medium, and (3) these two speeds are different. Claim 1 also recites another feature (4), that the medium type is sensed while going through the image forming unit (in the transport unit) to determine both speeds.

(1) The last feature (4) is not disclosed by either reference, so no combination would reach claim 1.

(2) *If* the person of ordinary skill had been motivated to combine the references (not admitted), the resulting combination would have included those features taught by the references themselves, as discussed above.

For thin sheets, the references teach delaying entry into the printing path to avoid the belt seam (Hino) and keeping the return path speed constant while using the inverter to maintain timing of sheets into the printing path (Russel). Clearly, the combination would use the inverter delay of Russel to avoid putting the thin sheets onto the belt seam, while keeping the return-path speed constant. Neither reference teaches varying the return-path speed for different sheet thicknesses, or for any other reason, and this would not be included in the combination.

Hino's teaching is ambiguous for thicker sheets; either the thicker sheets use different print-path speed and proportional delays or the entire delay system is dropped. In either case, a combination would not have reached the instant claim.

(3) The Examiner asserts combining Hino and Russel. However, the two references are seen to teach oppositely, which teaches against their combination.

As discussed above, Hino teaches that both the print-path transport speed and the delay intervals are adjusted together. Hino does not even mention the return-path speed and there is no teaching about it. Since Hino is concerned with timing of the paper and the belt, one possible implication is that the return-path speed should be increased in proportion to the transport speed, just as the delays are, so as to keep the timing relationships the same. The Applicant sees that, insofar as any teaching can be inferred from Hino, it is that the transport speed and the return speed should change together.

Thus, one reference actively teaches against varying the speed in the return path, and the other, if it teaches anything about that speed, inherently teaches variation.

Furthermore, both have the same object, namely, timing the paper's entry into the printing section, but they choose different approaches to solving this same problem. Russel keeps papers in the inverter for a specific interval, and Hino holds them back in the main path.

With respect, the person of ordinary skill is not taught to combine the references by the references themselves.

Claim 19. Independent claim 19 recites different speeds for different curvature radii. The Examiner relies on Fig. 1 of Russel for disclosing this feature (Action at page 3, lines 12-18). The Examiner is asked to consider the following points:

(1) Under MPEP guidlines, the drawing cannot be relied upon to disclose proportions.

(2) Fig. Fig. 2 shows the paper bent to a small radius (near the end of the lead line from numeral "2") and, if the drawing could be relied upon, then arguably it would show a smaller radius in a position contrary to the rejection.

(3) Fig. 1 is schematic. If the dot-dash line actually represents the exact paper path (not admitted) and an actual mechanism (not admitted) then what supports the paper at the right-hand end? There are no rollers or guides there (as there are none in front of the cassettes 58). Why does the path end in empty space at the left-hand end (new numeral "69")? With respect, Fig. 1 could not be relied upon even if the MPEP permitted rejections based on drawing proportions.

(4) The Applicant respectfully traverses the assertion that setting speeds according to radius is a matter of routine experimentation. There is no suggestion of relating the speed to the

radius anywhere in the applied art (as is argued above), so this suggestion can only have come from the Applicant himself. Neither is there any suggestion in the art toward experimentation.

If the person of ordinary skill is not led toward experiment by the prior art, he or she will not experiment: lack of initiative and imagination is the main characteristic of this person. Therefore, unless the prior art suggests experimenting to find the best speed for a given radius (it doesn't), the routineer won't do it and then the feature is not obvious.

Dependent Claims. Claims 2-7 were rejected over Hino, Russel and Kato. These, and the other dependent claims, are allowable by their dependence and for additional features, not argued at this time.

Claim 18. Independent claim 18 is allowed.

Respectfully submitted,

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I certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office (fax no. 571-273-8300) on October 2, 2006.

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